6-1946

Unit Procedure Versus the Traditional Procedure in Teaching Social Science

Uberto Price
Western Kentucky University

Price,

Uberto

1946

4234

UNIT PROCEDURE VERSUS THE TRADITIONAL PROCEDURE IN TEACHING SOCIAL SCIENCE

BY

UBERTO PRICE

A THESIS

SUBMITTED IN PARTIAL FULFILLMENT

OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS

JUNE 1946

Approved:

Major Professor Bert R. Smith

Department of Education H. Francis Jones

Graduate Committee

PREFACE

Much has been written and said concerning the unit procedure of teaching in the past few years. Some educators have questioned the value of it, comparing it with the traditional procedure, assign-study-recite-test. The two procedures were studied in a curriculum class that the writer was in. There arose in the mind of the writer the desire to compare the two procedures in an actual situation. This desire to compare these two procedures resulted in this study.

The writer wishes to express his appreciation to his Major Professor, Dr. Bert R. Smith, who so patiently and generously gave inspiration, suggestions and time, making this study possible and to Dr. Lee Francis Jones for his interest and assistance.

The writer is also indebted to members of the library staff, and to Mrs. Grace Overby who cooperated most splendidly.

CONTENTS

TABLES

CHAPTER I

INTRODUCTION

Fundamental principles of teaching usually suggest that the materials of most texts are presented in one of two ways, the unit procedure or the traditional procedure, assign-study-recite-test. Most often it is organized for the unit procedure. This organization supports the assumption that the trend in modern education is toward the unit procedure.

There was a great desire in the mind of the writer to test the worth of the unit plan of teaching and it resulted in this study. Chapter one of this study includes the following:

1. Statement of problem.
2. Scope of study.
3. Source of data.
4. Technique of treatment.
5. Other similar studies.

Statement of problem.- The problem is to determine which is more effective in teaching social science, the unit procedure or the traditional procedure, the assign-study-recite-test.

Scope of study.- This study is based on the findings of a study made in the ninth grade social science class in Edmonton High School, Edmonton, Kentucky, for the school year of 1944-45. The study deals with fifty-seven pupils divided into two homogeneous groups on the basis of number, intelligence quotients, and achievement quotients.

Source of data.- The data contained herein were secured first hand from the two groups into which the class was divided. Intelligence and achievement tests were given for the purpose of homogeneous grouping.

Further data were based on the two groups, the experimental group and the control group, as follows:

Knowledge tests (subject matter)

Achievement tests

Collateral readings

Ratings in other classes

Grades

Use of time in study hall

Daily attendance

Withdrawals

Classes observed by other teachers

Technique of treatment.- The technique of treatment is statistical, experimental, and comparative. It is statistical in that it deals with the treatment of facts as presented in the various tables. It is experimental because it is a study that takes into consideration two groups, one that was taught by the unit procedure, the other that had the traditional procedure, assign-study-recite-test. It is comparative because there is a comparison of the two groups according to the results of the experiment.

During the first week of school intelligence tests and achievement tests were given to the class and were scored. This was done for the purpose of dividing the class into two homogeneous groups based on the intelligence and achievement scores.

The two groups became known and will be referred to from here on as the experimental group which was taught by the unit procedure, and the control group which was taught by the traditional procedure, assign-study-recite-test.

Summary of similar studies.- Similar studies have been made in various subjects, but none identical to this study was found. These studies have furnished some information and valuable ideas for this particular study. The similar studies have not been disproved in any respect, but seem to be strengthened by this study.

M. Willard.-[1] Willard carried on this study with a group of high school pupils in the Liberty School, Ambridge, Pennsylvania. This study was completed in 1929. It was for the purpose of testing, valuing, and determining the worth of two plans of recitation. Either plan used could be adopted to the conditions existing in any normal set up.

Problem.- The problem was a comparison of the Ambridge and the Daily Recitation Plan.

Source of data.- The source of data was the pupils in the Liberty School, Ambridge, Pennsylvania.

Treatment.- The treatment was statistical and discursive. Homogeneous groups were established by intelligence and achievement tests. The Ambridge plan provided for an oral presentation of the work by the teacher, followed by content reading by the pupils. Assimilation sheets were given to the pupils by the teacher. The teacher had daily checks and conferences with the pupil. Tests were given at intervals to check progress. Unmastered material was restudied. For the final recitation each pupil gave an oral discussion of the unit or any phase of it. Then tests were given. For the daily recitation plan the first of the period was used for recitation, followed by an assignment lasting two or three minutes. The

---

1 M. Willard, "Experiment in the Uses of Two Methods of Instruction", Educational Methods, Vol. 8 (June, 1929), pp. 505-510.

last half of the period was devoted to study. The assignment centered around about three topics. Each pupil read all the topics but selected one for special study. Each lesson was introduced by a review of the previous one and was closed by summarizing the present one.

Conclusions.- The Ambridge Plan resulted in 62 per cent perfection and the Daily Recitation Plan resulted in 53 per cent perfection of mastery of the subject matter, on the same tests.

Low attainment was due to ineffective method in the Daily Recitation Plan. The Ambridge Plan secured better results in that;

1. It produced a greater degree of assimilation.

2. It produced better adaptation.

Mrs. Mary A. Tanner.-[2] Mrs. Tanner carried on a study for the purpose of evaluating two types of assignments in 1935. The study was carried on with a group of pupils in a science class. The study was turned into a Master of Arts thesis at Western Kentucky State Teachers College, Bowling Green, Kentucky.

Problem.- The problem was to compare two types of assignments.

Source of data.- The source of data was two class groups of pupils.

Procedure.- The study was scientific and statistical. Pupils were divided homogeneously by mental and achievement tests. The new type assignment was for the experimental group. The subject-matter was divided into units of work with definite objectives worked out for both teacher and pupils. Assignments were given with definite problems to solve and how to solve them. A complete bibliography for reading was given to the

---

2 Mrs. Mary A. Tanner, A Comparative Study of the New-Type and the Old-Type Assignment, unpublished Master of Arts thesis, Western Kentucky State Teachers College (Bowling Green, Kentucky, 1935).

pupils of the experimental group and all assignments were mimeographed.

The old-type assignment was for the control group. It was made without any reference to units of study. No objectives were set up and no self tests were given. Each pupil was allowed to study from page to page in his own way.

Conclusions.- The trend is toward the new type assignments. The new-type assignment added greater zest to school work. Better results according to tests, were gotten by the new-type assignment.

Donald W. Fowler.-[3] Mr. Fowler carried on a study in Drury High School, North Adams, Massachusetts. This was an experiment in history seeking to improve interest through improvement in instruction. There were 177 children involved in this study.

Problem.- The problem was to create interest in history.

Source of data.- Drury High School, North Adams, Massachusetts, was the source of data.

Treatment.- The treatment was experimental. For the experimental group the courses were reorganized and the procedure was a modification of the Dalton Plan. The text book was used only as one of the many reference books and assignments were mimeographed questions and materials. Interest was the foundation of the work. There was a control group taught by the text book question-answer-assignments.

Results.- Lact of interest was reduced about 40 per cent. The question-answer-assignment work was favored by 29 of the group. The modified Dalton Plan was favored by 148 members of the group. The course was being taken by 36 pupils for credit. For interest, 141 were taking

---

3 Donald W. Fowler, "An Experiment in the History Laboratory", Historical Outlook, Vol. XXIV, No. 5, pp. 252-4.

the course.

Conclusions.- There was a greater interest in history. The desire for the work was on account of interest rather than for the sake of credit. The course encouraged individual thought and expression.

Virginia Lee Black.-[4] Black carried on a study which was completed in 1936 for the purpose of finding out how interest could be increased in literature. Two groups as nearly homogeneous as possible were formed from the results found on intelligence and achievement tests. Each group was made up of 40 pupils. The main difference in the way the two groups were taught was through the approach.

Problem.- The problem was to increase interest in literature.

Source of data.- The data came from a class room situation, two groups were formed with 40 pupils in each.

Treatment.- For the experimental group problems were studied from pupil questionnaires on literature. From these problems selections were made, work was tied around the interest, needs, and desires. Broad fields were covered, writers and writings were compared, group discussions replaced book reports. A logical approach through interest was used.

For the control group the same materials were used with a psychological approach, however, the teacher stood in the foreground directing the movements.

Conclusions.- The experimental group did more reading in class. The experimental group asked for more remedial help, both groups had the same opportunity for help. Eighteen in the experimental group came for

---

[4] Virginia Lee Black, "Can We Vitalize English", English Journal, College Edition, Vol. 25 (October, 1936), pp. 638-52.

help on how to study more effectively and only one came from the control group. The experimental group through its own interest, was working with a purpose, through activities and problems. There was greater interest in the experimental group which related the experiences of the past to the present.

CHAPTER II

THE EXPERIMENTAL AND THE CONTROL GROUP

There were fifty-seven pupils in the ninth grade at the opening of school. Intelligence tests[1] were given to the class. The range was from seventy-two to one hundred twenty as represented in Table I, before any pupils dropped out.

TABLE I
I.Q. DISTRIBUTION

Intervals of I.Q.	Experimental Group	Control Group	Totals
120-124	1		1
115-119	2	2	4
110-114	5	1	6
105-109	3	5	8
100-104	2	5	7
95-99	5	6	11
90-94	4	4	8
85-89	1	2	3
80-84	1	4	5
75-79	3		3
70-74	1		1
Totals	28	29	57

[1] Otis, Group Intelligence Scale. World Book Company, Chicago, Illinois

It will be noted that in Table I the pupil with the highest intelligence quotient was placed in the experimental group. This was done purposely. However the four cases with the lowest intelligence quotients were placed in this group also. Two of these lower four dropped out. All the cases with an intelligence quotient lower than 80 were placed in the experimental group. All the remaining cases were divided into two groups, the experimental group and the control group. This was done by taking the two highest cases in intelligence each time and placing one in the experimental group and the other one in the control group. This was done for the purpose of establishing two groups with average intelligence quotients as nearly equal as possible.

The experimental group had an average intelligence quotient of 98.5. Twelve pupils were above this mark, fifteen were lower and one came exactly on the average. The control group had an average intelligence quotient of 97.7. Sixteen pupils were above the mark and thirteen were lower. There was a difference of .8 in the average intelligence quotient of the two groups. Table I represents the class as it was originally started at the first of the year, with twenty-eight cases in the experimental group and twenty-nine cases in the control group.

Table II gives the range after seven had dropped from the experimental group and nine had dropped from the control group. This is a representation of the cases that remained for the nine month period in the study.

TABLE II
FINAL I.Q. DISTRIBUTION

I.Q.	Experimental Group	Control Group	Totals
120-124	1		1
115-119	2	1	3
110-114	4	1	5
105-109	2	4	6
100-104	2	2	4
95-99	3	6	9
90-94	4	3	7
85-89	1	1	2
80-84		2	2
75-79	1		1
70-74	1		1
Totals	21	20	41

The experimental group in Table II still contained the highest and the two lowest cases in the study, even after the seven had dropped from this group and nine from the control group. There were twice as many cases in the control group, from 95 to 99 as were in the experimental group. From this table it will be recognized that the control group was more of a homogeneous group than the experimental group as a whole. The average intelligence quotient for the experimental group after seven of the cases had dropped out was 100.+. The average intelligence quotient for the control group after nine of the cases had dropped out was 98.+. There was a difference of 1.5 in the average intelligence quotient of the two groups.

These fifty-seven pupils for this study were given achievement tests in social studies during the first week of school. The highest score was a grade achievement of 9.3 and the lowest score was a grade achievement of 3.9.

Table III shows the distribution of these scores before they were translated to grade achievements. This was before the sixteen cases had dropped out.

In Table III it will be noted that the two cases having the highest scores were placed in the control group and the two lowest in the experimental group. The remaining cases were distributed as nearly equal as possible between the two groups on the basis of the achievement tests, taking into consideration the intelligence quotient also.

TABLE III
ORIGINAL RAW ACHIEVEMENT SCORES

Scores	Experimental Group	Control Group	Totals
72-73		1	1
70-71		1	1
68-69	1		1
66-67	1		1
64-65			
62-63	1	1	2
60-61	2	1	3
58-59	3	1	4
56-57	3	3	6
54-55	3	3	6
52-53	3	5	8
50-51	2	4	6
48-49		2	2
46-47	2	3	5
44-45	1	1	2
42-43		1	1
40-41	2	1	3
38-39	2	1	3
36-37	2		2
Totals	28	29	57

Table IV shows the final distribution of the pupils after sixteen cases had been dropped. These are the forty-one that remained the full nine months.

TABLE IV
FINAL DISTRIBUTION OF GRADE ACHIEVEMENTS

Scores	Experimental Group	Control Group	Totals
72-73		1	1
70-71		1	1
68-69	1		1
66-67	1		1
64-65			
62-63	1		1
60-61	1		1
58-59	3	1	4
56-57	2	3	5
54-55	3	3	6
52-53	2	3	5
50-51	2	2	4
48-49		2	2
46-47	1	1	2
44-45	1	1	2
42-43			
40-41	1	1	2
38-39	1	1	2
36-37	1		1
Totals	21	20	41

Table IV shows that of the forty-one pupils who remained in school for the entire study, the two highest cases on the achievement tests were still in the control group. The person who made the lowest grade on the achievement tests remained in the experimental group.

The average grade achievement for the experimental group which remained for the entire study was 5.9 at the beginning of this study. The average grade achievement for the control group which remained in school for the completion of the entire study was 5.8 at the beginning of this study. There was a difference of only .1 in the average grade achievement of the two groups at the beginning of the year. This difference is in the cases who were permanent.

Table V shows how many children were under age, how many were normal age and how many were average in each of the groups.

TABLE V
AGE-GRADE DISTRIBUTION

Age	Control			Experimental		
	B	G	T	B	G	T
12		1	1	1	2	3
13	3	2	5	1	2	3
14	1	7	8	3	6	9
15	2	3	5	2	2	4
16		1	1		1	1
17				1		1
Totals	6	14	20	8	13	21
No. Under Age	3	3	6	2	4	6
No. Normal	1	7	8	3	6	9
No. Over Age	2	4	6	3	3	6
% Under Age	50	21.42	30	25	30.76	28.57
% Normal	16.66	50.57	40	37.5	46.15	42.86
% Over Age	33.33	28	30	37.5	23.07	28.57

The heavy line in Table V separating the cases who were fourteen year old indicates the children who are normal age in school.

In the control group there were six under age or 30 per cent of the group. There were six under age in the experimental group or 28.57 per cent. There was a difference of less than 1.5 per cent in the number of under age cases in each group. In the control group eight were normal or 40 per cent. There were nine normal in the experimental group or

42.84 per cent. There was a difference of slightly over 2.5 per cent in the number of normal children in each group.

There were six cases in the control group who were over age, or 30 per cent. There were six or 28.57 per cent of the cases in the experimental group who were over age. There was less than 1.5 per cent difference in the over age in the two groups. No child was in class because of failure the previous year.

The experimental and the control groups were established according to intelligence tests which were shown in Tables I and II, achievement tests which are shown in Tables III and IV and age-grade distribution which is shown in Table V. Other things were taken into consideration also such as sex, family background, and whether or not they were transported. It was impossible because of incomplete records to get a grade progress table.

The following suggested arrangement of a course of study was used with the experimental group.

A SUGGESTED ARRANGEMENT FOR A COURSE OF STUDY[3]

CHAPTER I

Introductory Chapter

1. An introduction of one or more paragraphs.
2. A graphical representation or chart.
3. Steps in the curriculum organization.
4. A statement of the philosophy.
5. Principles upon which the course of study is based.
6. Terminology generally found.
7. Objectives of education.

    a. Knowledge or understanding of:
    b. Attitudes towards:
    c. Habits of:
    d. Appreciation for:

8. Objectives for the subject with a, b, c, d, as in 7.

CHAPTER II

Unit Organization for the Course

1. List of all units for the course.
2. Development of all of the units in complete details according to the pattern.
3. All units should be completed during the continuous revision program.

CHAPTER III

Evaluation

1. The courses must be evaluated by some criteria.
2. Check it by the steps in the production program.

CHAPTER IV

Bibliography

1. List all bibliography used.
2. References to all text books should be specific.
3. Much free material should be listed.

---

3 Bert R. Smith, unpublished material outline. Western State Teachers College (Bowling Green, Kentucky).

In the introductory chapter an introduction to the course of study of several paragraphs was worked out. A chart was formulated showing the organization, established responsibilities, a working program, and the duties in a curriculum revision program. Steps which are necessary in curriculum organization were formulated and a statement of philosophy was worked out. Principles upon which the course of study was based were worked out along with a list of common terms. Objectives in education and objectives of the course in social science were developed in detail under four headings--knowledge of, attitudes toward, habits of, and appreciation for.

Chapter II of the course of study was given over to the units of work. The pattern that follows was used in developing each of the seventeen units that were taught.

THE STRUCTURAL PATTERN FOR A UNIT

I. Title

II. Introduction

III. Table of Contents

IV. Criteria

V. Grade Placement---Time Allotment

VI. Central Theme

VII. Objectives

- a. Knowledge of-
- b. Attitudes toward-
- c. Habits of-
- d. Appreciation for-

VIII. Approaches

IX. Development of Procedure

- a. Study Guides with Specific References and How to Study.
- b. Subject Matter-Knowledges-Understandings.
- c. Activities, Projects, Problems.
- d. Correlations
- e. Work sheets

X. Culminating Activity

XI. Outcomes

- a. Knowledge of-
- b. Attitudes toward-
- c. Habits of-
- d. Appreciation for-

XII. Leads to Other Units

XIII. Evaluation-Measuring Results

- a. Teacher Evaluations
- b. Pupils Tests
  1. Knowledge
  2. Attitude
  3. Habit
  4. Appreciation

XIV. Bibliography

- a. Teacher
- b. Pupil

A title for each unit was worked out. Each title for each unit contained a challenge to the interest of the pupil, yet it was appropriate for the material that was to be covered in the particular unit of work. There was an introduction to the unit of work following each title. The main purpose of this introduction was to establish a working agreement and to get the actual work on the unit started. The table of contents in each unit was complete and gave in detail the location of the things contained in the unit. It was very helpful because of the rapidity in finding any desired part. Criteria were worked out to guide the work of the units as to content and construction. It made the units contain and do what they were supposed to do if followed.

Grade placement was for the purpose of being sure that the material in the unit was not too difficult nor too easy for the ninth grade. Time was carefully estimated for each unit of work on the basis of importance, difficulty and the available material. Then all the units were taken into consideration so that each would receive the most possible amount of time available. Each unit was built around some central theme of child interest or enriched subject matter that would be of special interest to the pupils of the particular age group that was being dealt with. The aim of the central theme was to throw out a challenge. Four sets of objectives were worked out for each unit. They were knowledge of, attitudes toward, habits of, and appreciation for. These objectives were worked out specifically in detail. These units were based on the texts that were used in class.[4] Each unit was approached in some way that would appeal

---

[4] Harold Rugg, Problems in American Culture (Chicago, American Book Co., 1938).
Harold Rugg, Changing Governments and Changing Cultures (Chicago, American Book Co., 1938).

to the interest of the children. This was done in various ways for the different units. Sometimes it would be through a series of pictures, other times it might be through a story, an experience, through the bulletin board or group discussions of current events. Through the approach it was the aim to leave the child with a curious and questioning mind. In the development or procedure study guides with specific references and how to study were placed in the hands of each child. These study guides were worked out in detail. In each there was as many study guides as there were knowledge of objectives, for these study guides were used as specific means for achieving these objectives. The child knew exactly what he was expected to get and how to get it as well as where to find it.

Following the work on the subject matter there were various activities, problems or projects to work on. These were purposeful. Sometimes this work would be done by individuals, sometimes in groups and sometimes by the whole class. Following the activities we would correlate the work of the unit with other subjects. This was most extensive in English and geography. Work sheets were constructed to follow the assigned work and the correlations. They were used for the pupil to check to what extent he had mastered the unit of work. No assignment was left until after complete mastery of the work sheet was achieved. After the work sheet was used, if it were necessary from their indications, the material would be restudied. There would be as many work sheets as there were study guides.

After the study of each unit there was a culminating activity. It usually took the form of a program, a time graph or a scrap book. The outcomes were given under the same headings as the objectives were:

knowledge of, attitudes toward, habits of, and appreciation for. These would frequently outnumber the objectives because it was impossible to predict all of the outcomes. The lead to other units was presented in the form of a statement or two to make connections between the old and the new unit.

Each unit was evaluated first by the teacher using the evaluation criteria to see if it had done what it was supposed to have done. Pupils were given four kinds of tests; knowledge, attitudes, habits, and appreciation. Only the results of the knowledge tests were taken into consideration in this study.

A complete bibliography was listed at this point for use by both teacher and the pupils. Most of the collateral readings were taken from the bibliography at the close of the unit. Each of the seventeen units were developed according to this description.

The third chapter of the course of study was an evaluation of the course of study. This evaluation was given near the close of the course. It was evaluated first on content. The second part of the evaluation was on unit organization. The third part was on the evaluation itself. The fourth part was on the bibliography for the teacher and for the pupil. The evaluation was very specific and was broken down into many sub-heads under each of the four parts.

Chapter four contained a complete bibliography, in it was listed all the references that were used in the course of study. The references were broken down into pupil references, teacher references, and references for both pupil and teachers.

The above described course of study was used only in connection with the experimental group. Seventeen units made up the course of study.

The procedure that was followed by the control group was very different from that of the experimental group. The control group had specific assignments of material from the text book, which was also used for the experimental group. These assignments were always made at the close of the period. Very few outside references were given, but it was made plain that a strict account of all collateral reading must be kept. Practically all the work of the control group was prepared outside of class for the recitation that was to follow. This plan was followed with very few variations through the year.

The difference in the material which each covered was in procedure and treatment since both groups used the same text book. When a unit of work, or a block of work was completed both the experimental and the control group were tested by the same subject matter or knowledge test.

CHAPTER III

RESULTS

Knowledge Tests

These tests were constructed from the text book covering each unit of work, the same tests were given to both the experimental and the control group. The experimental group was given three other tests on attitudes, habits, and appreciation, but the results of these three were not considered in this study.

The tests were graded on a point basis. This was transferred to letter grades. The average number of points per pupil of the experimental group was 315. The average number of points per pupil for the control group was 247. There was a difference of 68 points per pupil favoring the experimental group, see Table VI.

TABLE VI
POINTS ACHIEVED ON KNOWLEDGE TEST

Group	Number of Points	Number of Cases	Average Per Pupil
Experimental	6620	21	315 +
Control	4948	20	247 +

If the curve system of grading had been used as described by Smith and Wright,[1] giving 7 per cent D's, 24 per cent B's, 38 per cent C's, 24 per cent D's and 7 per cent F's, the results would have been that all the F's would have fallen into the control group. All the A's would have

---

1 Wendell William Wright and Henry Lester Smith, Tests and Measurements (New York, S. Burdett Co., 1926), p. 19.

fallen into the experimental group, nine tenths of the B's would have fallen into the experimental group, nine tenths of the D's would have fallen into the control group and there would have been approximately an equal number in both groups receiving C's

Achievement Tests

Achievement tests were given to both groups the first week of the school year. Achievement tests were also given the last week of school. The achievement of each pupil was figured for the year. Differences which are circled show negative results. The numbers omitted in the column headed case number show that that particular case had dropped out. These results are shown in Table VII.

TABLE VII
GRADE ACHIEVEMENT FOR THE YEAR

Exp. Group Case Number	Grade Ach. Test First of Year	Grade Ach. Test Last of Year	Difference	Control Group Case Number	Grade Ach. Test First of Year	Grade Ach. Test Last of Year	Difference
1	6.55	9.65	3.1	1	5.35	6.	.65
2	6.3	8.5	2.2	2	6.	7.	1.
3	6.3	7.2	.9	3	5.2	5.8	.6
4	8.55	9.4	.85	4	4.2	6.3	2.1
5	4.85	7.35	2.5	5	4.05	4.4	.35
6	5.5	7.7	2.2	6	5.85	6.95	1.1
9	4.15	4.55	.4	8	5.5	5.65	.15
10	5.25	6.7	1.45	10	6.15	8.05	1.9
11	5.6	8.1	2.5	11	5.55	6.7	1.15
12	5.25	6.6	1.35	13	5.8	5.25	-.55
13	4.6	5.05	.45	14	4.95	5.1	.15
15	5.9	6.8	.9	17	9.3	10.25	.95
16	4.3	3.9	-.30	18	6.1	8.1	2.
17	7.2	8.9	1.7	19	4.95	4.9	-.05
18	6.8	7.7	.9	21	6.5	7.4	.9
19	5.9	6.45	.55	24	9.4	10.2	.8
20	6.65	8.9	2.25	25	5.1	4.9	-.2
24	6.25	9.95	3.7	26	4.6	5.7	1.1
25	5.75	7.6	1.85	27	5.85	7.85	2.2
26	3.95	7.2	3.25	28	5.9	6.95	1.05
28	9.2	11.+	1.8+				
			34.80				18.15
			-.30				-.80
Totals	124.80	159.30	34.50		116.10	133.45	17.35
Avg.	5.94	7.58	1.64		5.805	6.67	.8675

The average grade achievement for the experimental group the first week of school was 5.94 per pupil. The tests which were given the last week of school showed an average of 7.58 per pupil or an average progress of 1.64 per pupil for the experimental group during the school year. The average grade achievement for the control group the first week of school was 5.805 per pupil. The tests which were given the last week of school showed an average grade achievement of 6.67 per pupil or an average progress of .86 + per child in the control group for the school year. There was a difference of .78 in progress favoring the experimental group or almost a year's work.

Collateral Reading

During the year collateral readings were encouraged for both the experimental and the control group. This collateral reading was made up of appropriate fiction, biographies, autobiographies, histories, geographies, sociologies, magazines on current news, pamphlets and bulletins. These were taken from the school library, private libraries and the county library. Notes were taken on the reading by the pupils as they read them and handed in at the end of each unit. The pupils who did these readings were able to make worth while contributions in class discussions. The most worth while readings were listed in the bibliography following each unit in the course of study. Many cases in the experimental group would read all the material they could find in the references and ask for more.

During the year the experimental group read an average of 2678 pages per pupil of related material. The control group read during the year an average of 1373 pages per pupil. The average per pupil for the experimental group exceeded the average per pupil for the control group more than 1500 pages in collateral reading.

Group Ratings by Teachers

Teachers in school who had the pupils in class were asked to give ratings of the pupils at the close of school. They were to rate them on the following characteristics: interest, initiative, attitude, self-reliance, and reliability in regard to their class work. There were four possible ratings for each pupil by each teacher on each of the characteristics. They were, excellent, good, fair and poor. If they were rated excellent, four points were given, if they were rated good, three points were given, if they were rated fair, two points were given, and if the rating was poor, one point was given. No teacher saw the rating of any other teacher, yet the ratings were close. The results were that the average for the control group rated 2.827 points per pupil. The ratings for the control group are shown in Table VIII. The experimental group received an average rating of 3.145 points per pupil. The results may be seen in Table IX for the experimental group. The experimental group exceeded the control group by an average of .318 points per pupil.

TABLE VIII
EVALUATION OF CONTROL GROUP

Case Number	Teacher A					Teacher B					Teacher C					Teacher D					Totals
	Interest	Initiative	Attitude	Self Reliance	Reliability	Interest	Initiative	Attitude	Self Reliance	Reliability	Interest	Initiative	Attitude	Self Reliance	Reliability	Interest	Initiative	Attitude	Self Reliance	Reliability	
1	3	3	4	4	4	3	3	3	3	3	2	2	3	3	3	3	2	3	3	4	63
2	2	3	1	2	1	1	1	2	2	1	3	3	3	2	2	2	2	3	2	1	39
3	3	2	4	2	3	3	2	2	2	3	3	2	3	2	3	3	3	3	3	4	55
4	2	2	3	3	4	2	3	3	2	3	3	3	4	3	3	3	2	3	3	4	58
5	2	1	3	2	2	1	2	2	2	2	2	1	3	1	2	2	1	2	1	3	37
6	1	2	3	2	2	1	2	2	2	2	1	3	2	2	2	3	2	3	2	3	41
7	3	3	2	4	3	3	4	4	4	3	2	2	4	2	3	2	2	2	3	3	57
8	4	3	4	3	4	3	3	4	4	4	4	3	4	3	4	4	3	4	2	4	71
10	4	3	4	3	4	3	3	3	3	3	2	3	4	3	3	2	3	3	3	4	63
11	4	3	4	3	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4	77
13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20
14	3	3	4	4	4	4	3	4	4	4	3	3	4	4	4	3	4	4	4	4	74
17	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	80
18	2	2	3	3	4	3	3	3	4	3	2	2	3	2	3	3	2	2	2	2	53
19	2	2	4	2	3	3	3	4	2	3	2	2	4	2	3	3	2	3	2	4	55
21	4	2	3	3	4	3	4	3	3	3	3	4	4	3	4	3	3	3	3	3	65
24	4	3	3	3	4	3	3	4	4	4	2	3	3	3	4	3	2	3	3	4	65
25	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	80
26	1	2	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	23
27	2	2	2	2	2	2	3	3	2	2	3	3	4	4	3	3	3	3	3	4	55
Totals			285					283					282					281			1131
																				Average	2.827

TABLE IX

EVALUATION OF EXPERIMENTAL GROUP

Case Number	Teacher A					Teacher B					Teacher C					Teacher D					Totals
	Interest	Initiative	Attitude	Self Reliance	Reliability	Interest	Initiative	Attitude	Self Reliance	Reliability	Interest	Initiative	Attitude	Self Reliance	Reliability	Interest	Initiative	Attitude	Self Reliance	Reliability	
1	3	2	4	4	4	3	2	4	4	4	3	2	4	4	4	4	3	4	4	4	70
2	4	3	4	4	4	4	4	4	4	4	3	3	4	4	4	3	3	4	4	4	75
3	3	2	3	3	4	2	3	3	3	3	3	2	4	3	4	4	3	4	4	4	60
4	4	3	4	3	4	3	3	4	3	3	3	3	4	3	3	3	3	4	4	4	68
5	3	3	3	3	4	3	3	3	3	3	3	3	2	3	3	3	3	2	3	2	58
6	2	2	4	3	3	1	1	1	2	1	1	1	4	1	1	3	2	3	3	4	42
9	2	2	4	3	3	3	3	4	3	4	3	3	4	3	4	4	2	4	3	4	65
10	2	2	2	3	3	3	3	3	3	3	2	2	4	3	3	2	3	4	3	4	57
11	3	4	3	4	4	3	4	4	4	3	3	3	4	3	3	4	3	4	4	4	71
12	3	4	3	4	3	3	4	4	4	3	2	2	3	3	3	3	3	3	3	4	64
13	2	2	2	2	2	1	1	1	2	1	3	3	2	2	2	3	3	3	3	3	41
15	3	2	3	4	4	3	4	4	3	4	3	3	4	3	4	4	4	4	4	4	71
16	4	1	3	2	3	4	1	3	3	3	3	1	3	3	3	4	1	3	2	4	54
17	3	4	3	4	4	3	4	4	4	3	3	4	4	4	4	4	4	4	4	4	75
18	2	4	3	3	3	3	4	3	3	3	2	3	3	3	3	3	4	4	4	4	64
19	1	1	1	1	1	1	2	1	1	1	1	1	2	1	1	1	1	2	2	3	26
20	4	3	3	4	4	4	4	3	3	3	3	4	3	4	3	3	4	3	4	4	70
24	4	3	3	4	4	4	3	3	3	4	3	3	3	4	4	4	4	4	4	4	72
25	4	4	4	4	4	4	3	3	4	4	4	3	4	4	4	4	3	4	4	4	76
26	3	4	3	4	4	3	4	4	4	3	2	2	3	2	3	4	3	4	4	4	67
29	4	3	3	4	4	4	3	3	4	4	4	3	4	4	4	4	4	4	4	4	75
Totals	329					322					308					362					1321
																Average					3.145

Grades in all Classes

The grades were taken for both groups in all other classes. In order to get a comparison of the grades made by the two groups the assumption was made that A's carry four points, that B's carry three points, that C's carry two points, that D's carry one point, and that F's carry no points. The results are shown in Table X. The subject marked with one asterisk indicates that only the boys were in the class. The subject marked with two asterisks indicates that only the girls were in that class.

The average number of points made by the experimental group was 2.6 per pupil. The average number of points made by the control group was 2.2 per pupil. The greatest difference appeared in social science, but in no subject did the control group exceed the experimental group. The same procedure was used on both groups in every class other than in social science. No divisions were made for instruction in home economics, English and agriculture, but in mathematics there were two divisions with the same pupils in each group as was in social science.

TABLE X
GRADE POINTS IN ALL SUBJECTS

Subjects	Experimental			Control		
	No. of Points	No. of Cases	Avg.	No. of Points	No. of Cases	Avg.
Social Science	127	42	3.02	76	40	1.95
*Agriculture	43	16	2.68	27	12	2.25
**Home Economics	79	26	3.03	81	28	2.89
English	91	42	2.16	81	40	2.02
Mathematics	89	21	2.11	77	40	1.92
Average	XXX	XXX	2.6	XXX	XX	2.2

Study Hall Habits

Both groups were in study hall together. The study hall teacher was asked to rate each pupil on his working habits and on how he took advantage of time. Four points were allowed for excellent, three points for very good, two points for good, one point for fair, and no points for poor. Each member of the experimental group had an average of 2.8 points. The control group had an average of 2.05 points per pupil.

Daily Attendance

From the daily attendance a record was taken of the attendance of both of the groups. The experimental group had a 94 per cent attendance and the control group had a 92 per cent attendance for the year.

Withdrawals

The experimental group started with a membership of 28, and concluded with a membership of 21. There was a loss of seven, but 2 of the seven entered school at another place, resulting in only 5 actually dropping out of school. The control group started with a membership of 29 and concluded with a membership of 20. There was a loss of nine, but not one entered school anywhere else.

The Two Groups Rated by Other Teachers

Three teachers were given rating slips and asked to observe the two groups in action and to rate them. Their ratings are summarized in Table XI. The numbers indicate the number of ratings on that particular characteristic.

TABLE XI
TEACHERS' EVALUATION OF THE TWO GROUPS AT WORK

Characteristic	Group	Excellent	Good	Fair	Poor
Interest	Experimental	3			
	Control		2	1	
Attention	Experimental	3			
	Control		1	2	
Endeavor	Experimental	1	2		
	Control		2	1	
Participation in Discussion	Experimental	3			
	Control			3	
Initiative	Experimental	2	1		
	Control			3	
Worthy Contributions	Experimental	2	1		
	Control			1	2

Characteristics were given point value in rating as follows: Four points for excellent, three points for good, two points for fair, and one point for poor. The results were that the average for the experimental group was 3.77 per characteristic, and for the control group the average was 2.16 per characteristic. There was a difference of 1.61 favoring the experimental group. This put the experimental group very near excellent and the control group was nearer fair than good.

Re-entered School the Following Year

Every pupil other than one re-entered school the following year that was in the experimental group. This pupil who did not return was inducted into military training. This pupil who did not re-enter would have if it

had not been for the above existing condition. All of these pupils did not return to Edmonton School.

There were two pupils from the control group who did not re-enter the following year. There were no sufficient reasons for these two pupils not re-entering school the following year.

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

1. From Table VI it will be concluded that the experimental group had command of a greater amount of factual material and a better knowledge of the subject matter than the control group.

The average number of points per pupil in the experimental group exceeded the average number of points per pupil in the control group by 68.

If grades had been distributed according to the curve, no A's would have fallen in the control group, no F's would have fallen in the experimental group, nine-tenths of the B's would have fallen in the experimental group, nine-tenths of the D's would have fallen in the control group, with approximately an equal number of C's.

2. In Table VII Achievement Tests show that the average pupil progress per pupil for the year was 1.64 for the experimental group. The average pupil progress per pupil for the year in the control group was .867+. Achievements were greater by unit procedure.

3. The members of the experimental group read wider and in greater quantity than the control group. Each pupil in the experimental group read an average of 2878 pages of collateral material for the year. The control group read an average of 1373 pages per pupil for the year. This gives the experimental group a plurality of 1505 pages per pupil for the year.

4. Children in the experimental group according to Tables VIII and IX were rated higher in their other classes on class characteristics than the children in the control group.

The experimental group had an average rating of 3.145 while the control group had a rating of 2.827. The maximum possible was four points.

5. The experimental group received on the average higher grades in other classes than the control group according to Table X. The average for the experimental group was 2.6 and for the control group 2.2. The maximum possible was four points.

6. The experimental group had better study habits as rated by the study hall teacher. The experimental group rated 2.8 and the control group rated 2.05 out of a maximum possible of four.

7. The average daily attendance was better for the experimental group. The experimental group had an average attendance of 94+ per cent. The control group had an average daily attendance of 92+ per cent.

8. More members of the control group dropped out of school. Nine members of the control group dropped out of school, none re-entered. Seven members dropped out of the experimental group but two re-entered at another school making only five actually dropping out of the experimental group.

9. The experimental group had more worthy characteristics in action in social science than the control group according to the rating of three teachers who observed. The experimental group had an average rating of 3.77 points. The control group had an average of 2.16 points. The maximum rating possible was four points.

10. All the experimental group re-entered school the following year except one, who entered the army. There were two from the control group who did not re-enter.

Recommendations

1. It is recommended in the light of this study that the unit procedure of instruction in social science be introduced into schools.

2. It is recommended that further studies be made in comparing unit teaching with other procedures of teaching in other fields.

3. It is recommended that a similar experiment be carried on for a longer period of time with a larger number of subjects.

4. It is recommended that a similar study be made noting the results on attitudes, personality, appreciation, and social adjustment.

5. It is recommended that a similar study be made with a younger group of children.

BIBLIOGRAPHY

Black, Virginia Lee, "Can We Vitalize English", English Journal. Vol. 25 (October, 1936), pp. 638-652.

Fowler, Donald W., "An Experiment in the History Laboratory", Historical Outlook. Vol. 24, No. 5, pp. 252-254.

Otis, Group Intelligence Scale (World Publishing Co., Chicago, Ill.).

Stanford Achievement Test, Social Studies (World Publishing Co., Chicago, Ill.).

Rugg, Harold, Problems in American Culture (American Book Co., Chicago, Ill., 1938).

Rugg, Harold, The Problems in Changing Governments and Changing Culture (American Book Co., Chicago, Ill., 1938).

Smith, Bert R., Unpublished material (Western Kentucky State Teachers College, Bowling Green, Ky.).

Tanner, Mary A., A Comparative Study of the New-Type and the Old-Type Assignment, unpublished Master's thesis (Western Kentucky State Teachers College, Bowling Green, Ky., 1935).

Willard, M., "Experiment in the Use of Two Methods of Instruction", Educational Methods (June, 1929), pp. 505-510.

Wright, Wendell William, and Smith, Henry Lester, Tests and Measurements, (Silver Burdett and Co., New York, N.Y., 1928), p. 19.